ASCE SEATTLE SECTION LOCAL 2017 OUTSTANDING CIVIL ENGINEERING PROJECTS

Outstanding Small Project

Golden Gardens Drainage and Stairway Renovation

Location: Seattle, WA

Project Team: Seattle Parks and Recreation, Osborn Consulting, Nakano Associates, CiviTech Engineering

Before

After

The Golden Gardens Drainage and Stairway Renovation project replaced failing stairs with a new ADA-compliant concrete stairway and significantly improved the drainage system in Golden Gardens Park, located along the Puget Sound in Ballard. The previous drainage system along the steep slope leading into the park was failing and created serious safety concerns for the stairway, which was collapsing as the fine sand underneath was washed out of the slope and into the drainage channel. The improved drainage system captures water without causing erosion of the hillside beneath and around the stairway. The newly constructed ADA-compliant stairway provides a safe entrance to the landmark Golden Gardens Park and the improved drainage system protects the stairs and park visitors for years to come.

Outstanding Structure

State Route 520 Floating Bridge and Landings Project

Location: Seattle, WA

Project Team: WSDOT, Kiewit/General, Manson, BergerABAM, HDR, KPFF, Parametrix

The SR 520 Floating Bridge and Landings Project designed and built the world's longest floating bridge, creating a safer, more reliable highway link between Seattle and the growing cities east of Lake Washington. With HOV lanes, full shoulders for disabled vehicles, a cross-lake bicycle and pedestrian path, and the biggest, heaviest, strongest bridge pontoons ever built, the new, 1.5-mile-long floating highway dramatically improves the movement of people and freight in the Central Puget Sound region. In addition, the bridge's innovative stormwater-treatment system – one of the few of its kind in North America – improves water quality in Lake Washington by capturing bridge runoff and removing pollutants, including motor oil, antifreeze, gasoline and other floating pollutants.

Outstanding Water Resources

King County Barton CSO Control Project with GSI

Location: Seattle, WA

Project Team: KCWTD, MIG/SvR, Associated Earth Sciences, Aqualyze, PRR, Goodfellow Inc

To support efforts to protect public health and water quality, and reduce annual treatment plant costs, King County Wastewater Treatment Division (KCWTD) selected green stormwater infrastructure (GSI) as the preferred alternative for controlling combined sewer overflows (CSO) for the 1100-acre Barton combined sewer system (CSS) basin in Seattle. In 2008 the basin had an average of four overflows per year with a total discharge of four million gallons into Puget Sound. In order to meet compliance of no more than one CSO event per year on a 20-year moving average, KCWTD retrofitted 15 residential streets with 91 bioretenton cells in order to intercept, treat and reduce the amount of stormwater discharging into the CSS. After filtering through the bioretenton soil and plantings, stormwater discharges into an underdrain that conveys the flows to an underground injection control screen well for deep infiltration to a receptive soil layer beneath the area's hard-packed glacial till. The Barton project's success has been instrumental in informing future KCWTD CSO control investments.

Honors Award Water Resources

Morse Lake Pump Plant

Location: North Bend, WA

Project Team: SPU, Reid Middleton, AECOM, BHC, CivilTech, Orion Marine, Whitney Equipment Company

Seattle Public Utilities needed to replace two, 120 MGD pump stations with a single new 240 MGD pump station on the Chester Morse Lake (CML) reservoir to improve the reliability of supplying water to its 1.4 million customers. The floating pump station, consisting of modular steel pontoons that form the 80-foot by 40-foot barge, supports the submerged axial-flow pumps and fish screens, pumps water when the lake elevation drops below the crest of an intermediate dike. The floating pump station is stored in a weather protected cove and is transported to an operating position where it docks with submerged pipelines. The project required the team's ingenuity to design and build a floating pump station that maximizes operational flexibility, minimizes the need for marine contractor support, and helps improve water supply reliability.